What is claimed is:

1. A wavelength dispersion compensation system, comprising:

an optical transmitting end station wavelength-multiplexing optical signals, and outputting a wavelength-multiplexed signal to a transmission line;

a plurality of first optical repeater nodes arranged on the transmission line; and

at least one second optical repeater node, which is arranged among said plurality of first repeater nodes arranged on the transmission line, wherein

each of said plurality of first optical repeater nodes compensates for dispersion whose value is larger than a value of dispersion which occurs between said optical transmitting end station or an adjacent first optical repeater node or an adjacent second optical repeater node and the first optical repeater node itself, and

said second optical repeater node compensates for dispersion so that residual dispersion occurs for a value obtained by subtracting a value of dispersion, which is compensated by a first optical repeater node between said optical transmitting end station or a second optical repeater node at a preceding stage and said second optical

repeater node itself, from a value of dispersion in a transmission line, which occurs between said optical transmitting end station or the second optical repeater node at the preceding stage and said second optical repeater node itself.

2. The wavelength dispersion compensation system according to claim 1, wherein

said second optical repeater node is a node which adds/drops an optical signal.

3. The wavelength dispersion compensation system according to claim 1, wherein

said second optical repeater node is a compensation node compensating for a gain deviation and a compensation error of a wavelength dispersion slope, which accumulate as a wavelength division multiplexed optical signal propagates the system.

4. The wavelength dispersion compensation system according to claim 1, wherein

said second repeater node is a node switching a path of an optical signal for each arbitrary wavelength.

5. The wavelength dispersion compensation

system according to claim 1, the system transmitting both of an optical signal whose bit rate per wavelength is 10 Gbps, and an optical signal whose bit rate per wavelength is 40 Gbps.

6. The wavelength dispersion compensation system according to claim 5, wherein

the optical signal whose bit rate per wavelength is 40 Gbps is used only for a transmission between said optical transmitting end station and a particular node, between particular nodes, or between a particular node and an optical receiving end station.

7. A wavelength dispersion compensation method, which has an optical transmitting end station wavelength-multiplexing optical signals and outputting a wavelength-multiplexed signal to a transmission line, a plurality of first optical repeater nodes arranged on the transmission line, and at least one second optical repeater node, which is arranged among the plurality of first repeater nodes arranged on the transmission line, comprising:

compensating for dispersion whose value is larger than a value of dispersion which occurs between the optical transmitting end station or an adjacent first

optical repeater node or an adjacent second optical repeater node and the first optical repeater node itself, by each of the plurality of first optical repeater nodes; and

compensating for dispersion so that residual dispersion occurs for a value obtained by subtracting a value of dispersion, which is compensated by a first optical repeater node between the optical transmitting end station or a second optical repeater node at a preceding stage and the second optical repeater node itself, from a value of dispersion in a transmission line, which occurs between the optical transmitting end station or the second optical repeater node at the preceding stage and the second optical repeater node itself, by the second optical repeater node.

8. The wavelength dispersion compensation method according to claim 7, wherein

the second optical repeater node is a node which adds/drops an optical signal.

9. The wavelength dispersion compensation method according to claim 7, wherein

the second optical repeater node is a compensation node compensating for a gain deviation and a compensation

error of a wavelength dispersion slope, which accumulate as a wavelength division multiplexed optical signal propagates the system.

10. The wavelength dispersion compensation method according to claim 7, wherein

the second repeater node is a node switching a path of an optical signal for each arbitrary wavelength.

11. The wavelength dispersion compensation method according to claim 7, the system transmitting both an optical signal whose bit rate per wavelength is 10 Gbps, and an optical signal whose bit rate per wavelength is 40 Gbps.

12. The wavelength dispersion compensation method according to claim 11, wherein

the optical signal whose bit rate per wavelength is 40 Gbps is used only for a transmission between the optical transmitting end station and a particular node, between particular nodes, or between a particular node and an optical receiving end station.